

Laparoscopic Major Gynecologic Surgery in Patients with Prior Laparotomy Bowel Resection

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ABSTRACT

Background and Objectives: To review the success and morbidity of laparoscopic major gynecologic surgery in patients with prior laparotomy bowel resection.

Methods: Review of a prospective surgical database of all cases of laparoscopic major gynecologic surgery in patients with prior laparotomy bowel resection. No cases were excluded. Bowel diagnoses and procedures were total colectomy for inflammatory bowel disease (4), partial colectomy for colon cancer (6), partial small bowel resection for obstruction (1), and Whipple for pancreatic cancer (2). Two patients had 3 prior laparotomies, 8 patients had 2 prior laparotomies, and 3 patients had 1 prior laparotomy. All prior abdominal incisions were midline. Gynecologic diagnoses and procedures were laparoscopic cytoreduction for ovarian cancer (1), lsh/bs0/staging for ovarian cancer (1), lavh/bs0/lymphadenectomy for endometrial cancer (4), and lavh/bs0, lsh/bs0, or bso for large ovarian mass (7). Median patient age was 57 years, median BMI was 31kg/m², and all patients had medical comorbidities.

Results: All 13 laparoscopic gynecologic surgeries were successful without trocar insertion injury, conversion to laparotomy, and without enterotomy. Abdominal adhesions were present in all cases. Median operative time was 2 hours, median blood loss was 100cc, and median hospital stay was 1 day. There were no postoperative complications.

Conclusion: Laparoscopic major gynecologic surgery in patients with prior laparotomy bowel resection is feasible for experienced laparoscopic surgeons.

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Key Words: Laparoscopic gynecologic surgery, Prior laparotomy bowel resection.

INTRODUCTION

Advanced laparoscopic procedures are increasingly being utilized as an alternative for laparotomy in gynecologic surgery.¹⁻⁶ A metaanalysis of 27 prospective randomized trials has proven the benefits of laparoscopic compared to abdominal gynecologic surgery: decreased pain, decreased surgical site infections (decreased relative risk 80%), decreased hospital stay (2 days less), quicker return to activity (2 weeks sooner), and less postoperative adhesions (decreased 60%).⁷

Abdominal wall adhesions are common following laparotomy. The incidence of abdominal wall adhesions is related to the type of prior abdominal incision: none -1%, laparoscopy -1%, transverse -30%, midline -60%, and multiple midlines -100%.⁸⁻¹¹ Abdominal adhesions can increase trocar insertion injury and increase conversion to laparotomy. Patients with multiple prior midline incisions for bowel resections are high risk for abdominal wall adhesions.

The purpose of this report is to review the success and morbidity of laparoscopic major gynecologic surgery in patients with prior laparotomy bowel resection.

METHODS

Over a 5-year period (2005 through 2010), all patients undergoing major gynecologic surgery by the senior author were entered into a prospective surgical database. Demographics were obtained and entered preoperatively, surgical outcomes were entered immediately postoperatively, and follow-up was entered for the first 30 days. We reviewed the prospective surgical database for all cases of laparoscopic major gynecologic surgery in patients with prior laparotomy bowel resection. All cases requiring major gynecologic surgery with prior laparotomy bowel resection were attempted laparoscopically. No cases were excluded. IRB approval was obtained.

All patients underwent a preoperative bowel preparation with one bottle of magnesium citrate, received a single dose of prophylactic antibiotics, pneumatic compression stockings, and early ambulation. Unless contraindicated, all patients received ketorolac (Toradol) 30mg IV at the completion of surgery, morphine 2mg to 5mg IV every 2 hours PRN, and oxycodone/acetaminophen (Percocet) 5/325mg 1 tab to 2 tabs by mouth every 6 hours PRN for analgesia. On postoperative day 1, patients were given bowel stimulation with 30mL of milk of magnesia, started on a general diet, and were discharged when fluid intake was adequate. Patients were followed up in the office at 1 week and 4 weeks after surgery, and patients with cancer were examined every 3 months to 6 months for 5 years.

All procedures were performed with the patient under general endotracheal anesthesia. An orogastric tube was inserted and removed at the end of surgery. The patient was positioned in the dorsolithotomy position with legs in Allen stirrups, and placed in a maximal Trendelenburg position (~30°). A gel pad was placed under the buttocks to prevent the patient from gravitating towards the head of the table. A 4-port (5-mm) transperitoneal approach was used. Veress needle-pneumoperitoneum-closed trocar entry was used. Initial entry was usually in the left upper quadrant but varied depending on the size of the patient, the size of the pelvic mass, and location of prior incisions. Initial entry was in the left lower quadrant in the 2 patients with prior Whipple (radical pancreatoduodenectomy) for pancreatic cancer. No initial trocar insertions were through a prior surgical scar. Surgery was performed with the PlasmaKinetic (PK) cutting forceps (Gyrus ACMI, Southborough, MA) and a laparoscopic 5-mm Argon-Beam Coagulator (ABC, ValleyLab, Boulder, CO). Large ovarian masses were decompressed at the abdominal incision to assist extraction. All surgeries were performed by the senior author (JF-gynecologic oncologist) with a first- and fourth-year gynecologic resident.

Bowel diagnoses and procedures performed were total colectomy for inflammatory bowel disease (4), partial colectomy for colon cancer (6), partial small bowel resection for obstruction (1), and Whipple (radical pancreatoduodenectomy) for pancreatic cancer (2). Gynecologic diagnosis and procedures were laparoscopic cytoreduction for ovarian cancer (1), lsh/bs0/staging for ovarian cancer (1), lavh/bs0/lymphadenectomy for endometrial cancer (4), and lavh/bs0, lsh/bs0, or bso for large ovarian mass ≥15cm (7). Two patients had 3 prior laparotomies, 8 patients had 2 prior laparotomies, and 3 patients had 1 prior laparotomy. All prior abdominal incisions were midline.

Median age was 55 years (range, 18 to 78), median BMI was 31kg/m² (range, 22 to 52), 92% were Caucasian, and all had medical comorbidities (Table 1).

RESULTS

All 13 laparoscopic gynecologic surgeries were successful without trocar insertion injury, conversion to laparotomy, and without enterotomy. Median operative time (time from skin incision to closure) was 2 hours (range, 0:30 to 2:55), median blood loss was 100cc (range, 10 to 250), and median hospital stay was 1 day (range, 0 to 1). There were no postoperative complications.

Abdominal adhesions were present in all cases. Eleven patients (85%) had small bowel adhesions to the anterior abdominal wall, and the other 2 patients (15%) had omental adhesions to the anterior abdominal wall. In addition to small bowel adhesions, 2 patients (15%) had large bowel (transverse colon) adhesions to the anterior abdominal wall. The small bowel adhesions to the anterior abdominal wall were supraumbilical in both patients with a previous Whipple (radical pancreatoduodenectomy) for pancreatic cancer. Seven patients (54%) also had pelvic adhesions.

Gynecologic diagnoses were ovarian cancer (3 patients); 1 stage 3C, one 1C, one recurrent pancreatic cancer; endometrial cancer (4 patients) - 3 stage 1A, 1 stage 2; and benign ovarian cyst (6) - 4 serous, 2 mucinous.

DISCUSSION

Abdominal wall adhesions are common following laparotomy. The incidence is particularly high in patients with multiple prior midline incisions for bowel resections—approaching 100%. In a review of 360 patients undergoing

Table 1.
Patient and Operative Characteristics

Median age	55 years (range, 18 to 78)
Median BMI	31 kg/m ² (range, 22 to 52)
Median Operative Time	2 hours (range, 0:30 to 2:55)
Median Blood Loss	100 mL (range, 10 to 250)
Median Hospital Stay	1 day (range, 0 to 1)
Abdominal Wall Adhesions	
Small Bowel	85%
Omental	15%
Transverse Colon	15%
Pelvic/Abdomen	54%

laparoscopy after a previous laparotomy, adhesions were present in 67% of women with a prior midline incision and 100% with multiple midline incisions.⁹ In an autopsy review of 522 women, 93% with multiple midline incisions had adhesions.¹⁰ In our series, adhesions were present in all cases.

Abdominal adhesions can increase trocar insertion injury, a rare but serious complication. In a review of 629 FDA reported cases of trocar insertion injury, mortality was 5% including a 21% mortality following bowel injury not recognized during surgery.¹² Trocar insertion injury frequently results in malpractice litigation which is expensive to settle.¹³ In a review of 477 patients undergoing laparoscopy, trocar insertion injury occurred in 7%, all in patients with previous laparotomy ($P < .05$).¹⁴ In a review of 360 patients undergoing laparoscopy after a previous laparotomy, trocar insertion injury occurred in 6% and was most common in women with multiple prior midline incisions.⁹ In our series, there were no trocar insertion injuries.

Abdominal adhesions can increase conversion to laparotomy. In a review of 2530 laparoscopies, there was a 6% conversion rate to laparotomy with previous laparotomy being the highest risk for conversion.¹⁵ In our series, there were no conversions to laparotomy.

CONCLUSION

We present a case series of 13 patients undergoing laparoscopic major gynecologic surgery with previous laparotomy bowel resection. All 13 laparoscopic gynecologic surgeries were successful without trocar insertion injury, conversion to laparotomy, and without enterotomy. We believe our success is due to increased experience in laparoscopic major gynecologic surgery and ever-improving laparoscopic technology. In a Pub Med review, we were unable to locate any other studies on laparoscopic major gynecologic surgery in patients with prior laparotomy bowel resection. It is our opinion that laparoscopic major gynecologic surgery in patients with prior laparotomy bowel resection is feasible for experienced laparoscopic surgeons (experienced in advanced laparoscopic procedures and adhesiolysis).

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